

WHAT IS CLAIMED IS:

1. AN LSI testing apparatus for testing an electronic device comprising:

5 a power source unit for supplying a source voltage of direct current to said electronic device;

a detecting unit for detecting a source current with which said electronic device is supplied by said power source unit; and

10 a judging unit for judging quality of said electronic device,

wherein said power source unit comprises means for overlaying an overlaid signal with a predetermined period on said source voltage, and said judging unit judges said quality of said electronic device on the basis of said source current detected
15 by said detecting unit in case said electronic device is supplied with said source voltage on which said overlaid signal is overlaid.

2. AN LSI testing apparatus as claimed in claim 1, wherein said power source unit comprises means for changing a signal level
20 of said overlaid signal, and said judging unit judges said quality of said electronic device for each signal level of said overlaid signal.

3. AN LSI testing apparatus as claimed in claim 1, wherein
25 said power source unit comprises means for changing a frequency of said overlaid signal.

4. AN LSI testing apparatus as claimed in claim 1, wherein
30 said judging unit judges said quality of said electronic device on the basis of a difference between a source current, which should be supplied to said electronic device, in case said electronic device is supplied with said source voltage and a source current

detected by said detecting unit in case said electronic device is supplied with said source voltage on which said overlaid signal is overlaid and a period of said overlaid signal.

5 5. AN LSI testing apparatus as claimed in claim 1, wherein
said judging unit judges said quality of said electronic device
on the basis of a difference between a spectrum of a source current,
which should be supplied to said electronic device, in case said
electronic device is supplied with said source voltage on which
10 said overlaid signal is overlaid and a spectrum of a source current
detected by said detecting unit in case said electronic device
is supplied with said source voltage on which said overlaid signal
is overlaid.

15 6. AN LSI testing apparatus as claimed in claim 1, wherein
said judging unit judges said quality of said electronic device
on the basis of a magnitude of a predetermined frequency component
of said source current detected by said detecting unit in case
said electronic device is supplied with said source voltage on
20 which said overlaid signal is overlaid.

7. AN LSI testing apparatus as claimed in claim 1 further
comprising a pattern generating unit for providing a test pattern
to said electronic device, wherein said judging unit judges said
25 quality of said electronic device on the basis of said source current
detected by said detecting unit under a condition, where said test
pattern is provided to said electronic device.

8. AN LSI testing apparatus as claimed in claim 7, wherein
30 said electronic device comprises a plurality of semiconductor
devices, and said pattern generating unit provides said electronic

device with said test pattern by which all of said plurality of semiconductor devices operate at least once.

9. AN LSI testing apparatus as claimed in claim 1 further
5 comprising an electromagnetic wave generating unit for generating
an electromagnetic wave with a predetermined frequency,

wherein said judging unit judges said quality of said
electronic device on the basis of said source current detected
by said detecting unit under a condition, where said
10 electromagnetic wave generated by said electromagnetic wave
generating unit is provided to said electronic device.

10. AN LSI testing apparatus as claimed in claim 9, wherein
said frequency of said electromagnetic wave generated by said
15 electromagnetic wave generating unit is approximately the same
as a frequency of said overlaid signal.

11. AN LSI testing apparatus as claimed in claim 9, wherein
said electromagnetic wave generating unit comprises means for
20 changing an intensity of said electromagnetic wave, which is
generated.

12. AN LSI testing apparatus as claimed in claim 9, wherein
said electromagnetic wave generating unit comprises means for
25 changing a frequency of said electromagnetic wave, which is
generated.

13. AN LSI testing apparatus as claimed in claim 9, wherein
said electromagnetic wave generating unit comprises a first
30 generator for generating an electromagnetic wave with a first
frequency and a second generator for generating an electromagnetic

wave with a second frequency,

wherein a position in which said first generator is provided is different from a position in which said second generator is provided.

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14. AN LSI testing apparatus as claimed in claim 13, wherein said electromagnetic wave generating unit comprises a magnetic field adjusting unit for adjusting at least one of a position and a direction of said first generator and said second generator.

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15. AN LSI testing apparatus as claimed in claim 9, wherein said judging unit judges said quality of said electronic device further on the basis of said frequency of said electromagnetic wave generated by said electromagnetic wave generating unit.

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16. AN LSI testing apparatus as claimed in claim 1, further comprising an alternating electric field generating unit for generating an alternating electric field with a predetermined frequency,

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wherein said judging unit judges said quality of said electronic device on the basis of said source current detected by said detecting unit under a condition, where said alternating electric field generated by said alternating electric field generating unit is provided to said electronic device.

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17. AN LSI testing apparatus as claimed in claim 16, wherein said frequency of said alternating electric field generated by said alternating electric field generating unit is approximately the same as a frequency of said overlaid signal.

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18. AN LSI testing apparatus as claimed in claim 16, wherein

said alternating electric field generating unit comprises means for changing an intensity of said alternating electric field.

19. AN LSI testing apparatus as claimed in claim 16, wherein
5 said alternating electric field generating unit comprises means for changing a frequency of said alternating electric field.

20. AN LSI testing apparatus as claimed in claim 16, wherein
said judging unit judges said quality of said electronic device
10 further on the basis of said frequency of said alternating electric field generated by said alternating electric field generating unit.

21. AN LSI testing apparatus as claimed in claim 15, wherein
said electronic device comprises a plurality of semiconductor
15 devices to which said power source unit supplies said source current on which said overlaid signal is overlaid, and

said alternating electric field generating unit comprises
an electric field probe for providing said alternating electric
field to an input to at least one of said plurality of semiconductor
20 devices.